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10/541,748

07/08/2005

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EXAMINER

CHAN, SAI MING

ART UNIT

PAPER NUMBER

2616

NOTIFICATION DATE

DELIVERY MODE

12/27/2007

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com  
pto@gbpatent.com

## Office Action Summary

Application No.

10/541,748

Applicant(s)

HARADA ET AL.

Examiner

Sai-Ming Chan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) ✓
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08) ✓  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Priority***

Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged.

### ***Information Disclosure Statement***

The information disclosure statements (IDS) submitted on 10/12/2005 and 11/30/2005 have been considered by the Examiner and made of record in the application file.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

**Claims 1-8, 10-14, and 16-18** are rejected under 35 U.S.C. 102(e) as being anticipated by **He et al. (U.S. Patent Publication # 20040105412)**.

Consider **claim 1**, He et al. clearly disclose and show a method for transmitting data stream via wireless medium for contention based medium access (fig. 3, paragraph 0005 (contention based operation)) across a wireless network having a plurality of stations (fig. 3 (stations a-e), paragraph 0005) and an access point (fig. 2 (a-g), paragraph 0003 (access point)) communicating to said stations via wireless medium (paragraph 0005 (wireless channel)), the method comprising: (i) performing a contention between the stations for wireless medium occupancy (fig. 3, paragraph 0005 (DCF mode is a contention-based operation mode))) for a station to transmit data stream at a selective contention period (paragraph 0006); (ii) transmitting data stream from the contention successful station after the contention (paragraph 0005), wherein the selective contention period is divided into two distinct period as: (a) contention medium occupancy period at which the stations contend for wireless medium occupancy for a station to transmit data stream (fig. 4 (k contention period), paragraph 0006 (k contention period)); and (b) prescheduled medium occupancy period at which a wireless medium occupancy reservation for a contention successful station is prescheduled (fig. 4, paragraph 0006 (pcf mode); paragraph 10 (new message with schedule info)).

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Consider **claim 2**, and **as applied to claim 1 above**, He et al. clearly disclose and show a method for transmitting data stream via wireless medium for contention based medium access across a wireless network having a plurality of stations and an access point communicating to said stations via wireless medium, the method comprising: (i) transmitting data stream from the station according to prescheduled wireless medium occupancy reservation for the station within prescheduled medium occupancy period of a selective contention period (paragraph 10 (SIPS – when to transmit info)); (ii) performing a contention between the stations for wireless medium occupancy for a contention successful station to transmit data stream within only contention medium occupancy period of the contention selective period (fig. 3, paragraph 0005 (DCF mode is a contention-based operation mode)); (iii) transmitting data stream from the contention successful station after the contention (paragraph 0005); and (iv) prescheduling a wireless medium occupancy reservation for the contention successful station to transmit within a prescheduled medium occupancy period of next selective contention period (abstract (transmission scheduling (poll+data+SIPS))).

Consider **claim 3**, and **as applied to claim 1 above**, He et al. clearly disclose and show a method, wherein the access point transmit a beacon signal (fig. 4(p beacon), fig. 12 (step 214 (SIPS))) including an information about start period of the

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contention medium occupancy period to each station (fig. 12(steps 212-216), whereby selective contention between the stations is performed.

Consider **claim 4**, and **as applied to claim 3 above**, He et al. clearly disclose and show a method, wherein the beacon signal, the prescheduled medium occupancy period, and the contention medium occupancy period are provided in turn in the selective contention period (fig.2 (pcf mode foloows by dcf mode), paragraph 0006 (CFP and CP periods)).

Consider **claim 5**, and **as applied to claim 1 above**, He et al. clearly disclose and show a method, when a station is successful for a contention at the contention medium occupancy period of the selective contention period, a wireless medium occupancy reservation having a duration period for the contention successful station is prescheduled within a prescheduled medium occupancy period of next selective contention period, then start period of a contention medium occupancy period of next selective contention period is moved forward (fig. 4 (q (cf end) ends and k (dcf mode) starts), paragraph 0008) from the start period of the contention medium occupancy period of the selective contention period by the duration period.

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Consider **claim 6**, and **as applied to claim 1 above**, He et al. clearly disclose and show a method, when a first station is successful for a first contention (fig. 12 (210, 212, 214 & 216), paragraph 0035) at the contention medium occupancy period of the selective contention period, subsequently a second station is successful for a second contention (fig. 12 (210, 212, 214 & 216), paragraph 0035) after the first contention, a first medium occupancy reservation having a first duration period for the first station is prescheduled (fig. 12 (210, 212, 214 & 216), paragraph 0035) within a prescheduled medium occupancy period of next selective contention period, subsequently a second medium occupancy reservation (fig. 12 (210, 212, 214 & 216), paragraph 0035) having a second duration period for the second station is prescheduled after the first medium occupancy reservation within the prescheduled medium occupancy period of next selective contention period, then start period of a contention medium occupancy period of next selective contention period is moved forward (fig. 12 (212), paragraph 0035) from the start period of the contention medium occupancy period of the selective contention period by sum of the first duration period and the second duration period (fig. 12 (212 is passed twice (first and second station)), paragraph 0035).

Consider **claim 7**, and **as applied to claim 6 above**, He et al. clearly disclose and show a method, wherein the start period and the duration period of transmissions from the first and second stations according to the scheduled wireless medium occupancy reservation are recorded (paragraph 0007 (each station receives a poll

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message with SIPS. It then returns with an ACK message)) in both the first and the second stations.

Consider **claim 8**, and **as applied to claim 1 above**, He et al. clearly disclose and show a method, wherein the station monitors condition of the wireless medium occupancy (paragraph 0005 (monitors the wireless channel)) in the selective contention period, and records the condition, then transmission timing is determined (paragraph 0005 (delay and back-off)) according to the condition of the wireless medium occupancy recorded.

Consider **claim 10**, and **as applied to claim 3 above**, He et al. clearly disclose and show a method, wherein the beacon signal further includes information with respect to: (i) start period (paragraph 0011(delay time)) and end period (paragraph 0011 (delay + interval)) of selective contention period having the contention medium occupancy period and the prescheduled medium occupancy period of the selective contention period; and (ii) duration period of the selective contention period (paragraph 0011 (interval)).



Consider **claim 11**, and **as applied to claim 10 above**, He et al. clearly disclose and show a method, wherein the beacon signal further includes information with respect to start period and duration period of prescheduled (paragraph 0010 (SIPS defines the time boundaries)) wireless medium occupancy reservation within the prescheduled medium occupancy period.

Consider **claim 12**, and **as applied to claim 1 above**, He et al. clearly disclose and show a method, wherein the station transmits data stream having last packet including reservation parameter (paragraph 0010 (SIPS)) for wireless medium occupancy reservation having a duration period (paragraph 0011 (interval)) in prescheduled medium occupancy period of next selective contention period, the access point receives the reservation parameter included in last packet, wireless medium occupancy reservation for the station will be prescheduled (paragraphs 0010-11) in prescheduled medium occupancy period of next selective contention period, then the start period of the contention medium occupancy period will be moved forward by the duration period (fig. 12 (212), paragraph 0034).

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Consider **claims 13, 14 and 16**, He et al. clearly disclose and show a wireless network system comprising a plurality of stations and an access point communicating with the stations via wireless medium,

the access point comprising:

a medium recorder unit (fig. 4, paragraph 0007 (polling list)) which records: (i) start and end period of contention medium occupancy period (paragraph 0006 (CF\_MAX\_Duration parameter)) in which stations contend for wireless medium occupancy for a station to transmit data stream, wherein the contention medium occupancy period is included in a selective contention period; and (ii) start (fig. 12 (delay), paragraph 0035) and end period (fig. 12 (delay, delay+interval), paragraph 0035) of prescheduled medium occupancy period in which wireless medium occupancy is prescheduled, and transmission is performed (paragraph 0011 (boundaries sets the time for AP's transmission)) according to the prescheduled wireless medium occupancy, wherein the prescheduled medium occupancy period is included in the selective contention period (fig. 12 (212), paragraph 0035);

a controller unit (paragraph 0002 (polling based MAC)) which pre-schedules wireless medium occupancy reservation having a duration period for contention successful station in prescheduled medium occupancy period (fig. 12 (212), paragraph 0035), and

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moves forward the start period of contention medium occupancy period of next selective contention period by the duration period (fig. 12 (212), paragraph 0035);

a transmitter unit (fig. 12 (214 send polling message) which transmits a beacon signal including information for start period of the contention medium occupancy period to the stations; and

a receiver unit (fig. 12 (214 receive ack)) which receives data stream transmitted from the station,

at least one station comprising:

a receiver unit (paragraph 0007 MT receives polling message) which receives the beacon signal including information of the start period of the contention medium occupancy period transmitted from the access point via the wireless medium (paragraph 0007 (receives CF-Poll+Data message));

a transmitter unit (paragraph 0007 (MT replies with ACK+DATA)) which transmits data stream via the wireless medium;

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a medium recorder unit (paragraph 0007 (receives CF-Poll+Data message)) which records transmission record; and

a controller unit (paragraph 0005 (MT monitors the wireless channel for transmission)) which extracts the information of the start period of the contention medium occupancy period from the beacon signal (paragraph 0007 (receives CF-Poll+Data message)), and monitors condition of wireless medium occupancy at every monitoring period among the start period and the end period of the contention medium occupancy period (paragraph 0005 (monitors the channel for transmission)), then instructs the transmitter to transmit data stream when the controller unit confirms that wireless medium is not occupied (paragraph 0005 (transmit packets when channel is free)).

Consider **claim 17**, and **as applied to claim 16 above**, He et al. clearly disclose and show a station, when the station is successful for a contention at the contention medium occupancy period of the selective contention period, and acquires a wireless medium occupancy reservation having a duration period for the contention successful station (fig. 6 (Contention Free Period)), then the station extracts information (paragraph 0006 (CF\_Max\_Duration parameter)) of start period of the contention medium occupancy period of next selective contention period, and begins to transmit data

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stream at a time before the start period of the contention medium occupancy period by the duration period (fig. 4 (CF\_Max\_Duration)).

Consider **claim 18**, and **as applied to claim 16 above**, He et al. clearly disclose and show a station, wherein the medium recorder unit (paragraph 0005 (records condition and delay until channel is free for transmission)) records the medium record including condition (paragraph 0005 (monitors the channel for transmission) of wireless medium occupancy in both the contention medium occupancy period and the prescheduled medium occupancy period of the selective contention period, wherein the controller unit calculates transmission timing (paragraph 0005 (transmit if free. Delay if not free)) at which the station transmits data stream in the prescheduled medium occupancy period according to the transmission record.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating

obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 9, 15 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over **He et al. (U.S. Patent Publication # 20040105412)**, in view of **Elg et al. (U.S. Patent Publication # 2004004973)**, and in view of **Takeuchi et al. (U.S. Patent Publication # 20020059636)**

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Consider **claim 9**, and **as applied to claim 1 above**,  
**claim 15**, and **as applied to claim 14 above**,  
**claim 19**, and **as applied to claim 16 above**

He et al. clearly disclose and show a method as described.

However, He et al. do not specifically disclose early termination of packet transmission.

In the same field of endeavor, Elg et al. clearly show when the access point receives no packet (fig. 7 (705->707->709), paragraphs 0064-0065) transmitted at the transmission timing according to prescheduled wireless medium occupancy reservation having a duration period for the station, the prescheduled wireless medium occupancy reservation will be cancelled (fig. 7 (713), paragraph 0065), then start period of the contention medium occupancy period of next selective contention period will be moved back (paragraph 0065 (medium is free and transmission begins at next time slot)) by the duration period.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a method for data transmission, as taught by He et al., and demonstrate early termination of packet transmission, as taught by Elg et al., in order to maintain the usage of resource to a maximum.

However, He et al., as modified by Elg et al., do not specifically disclose null packet.

In the same field of endeavor, Takeuchi et al. clearly disclose a null packet (paragraph 0082 (null packet to indicate recording is not necessary)).

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Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a method for data transmission, as taught by He et al., and demonstrate the null packet transmission, as taught by Elg et al., so that the data transmission is conducted efficiently.

***Conclusion***

Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Hand-delivered responses** should be brought to

Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Sai-Ming Chan whose telephone number is (571) 270-1769. The Examiner can normally be reached on Monday-Thursday from 6:30am to 5:00pm.



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If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

**Sai-Ming Chan**  
S.C./sc



December 15, 2007

*Seema S. Rao*  
SEEMA S. RAO 12/19/07  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600